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Publication No. JP 2001-136707

Filed 01-11-1999

Publication Date 18-05-2001

Application No. 11-311691

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**CLAIMS**

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[Claim(s)]

[Claim 1] The micro portable hand dynamo equipped with the function which is the drum which twisted yarn around the perimeter, make rotate a drum by the actuation which repeats and pulls the yarn of the drum which whirled around to the interior and has arranged the spring, make carry out one direction rotation of DOBOGIA and the engaged magneto rotor through DOBOGIA with the DOBO device in which the rotation to the fixed direction connected with this drum is permitted, and generates.

**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to the portable hand dynamo which can supply the electrical and electric equipment for a generation of electrical energy and charge to portable telephone, a portable personal computer, a portable radio, etc. in the place which does not have a power source.

[0002]

[Description of the Prior Art] the capacity of the cell used for these although the telecommunication device of pocket molds, such as a portable telephone, a portable personal computer, and GPS, has spread today -- a limitation -- it is -- on the way -- the situation where the electrical and electric equipment come out of and stored exhausts and is perplexed often comes out.

[0003] Moreover, although portable radio, a flashlight, etc. are used as a handbook at the time of urgent disaster, since these devices are not usually used but are left, a possibility of exhausting a cell is size.

[0004] Then, these people have already proposed the utility model registration No. 3053139, and by moving by hand the rack gear energized by the spring continuously, the outline carries out transmission rotation of a clutch gear, a middle

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gear, and the gear for drive shafts, rotates the rotor of a generator, is generated, and takes out the electrical and electric equipment from output code.

[0005]

[Problem(s) to be Solved by the Invention] However, with this design, a part of (1) rack gear (handle) needs to be arranged to the exterior of a body, and the body configuration had become size.

(2) Although the reciprocating motion of a rack gear (handle) was carried out to rotation, a both-way distance must arrange many middle gears for accelerating for rotating a magneto rotor at the rotational frequency more than fixed inside by that of a short paddle, and the body configuration had become size.

[0006]

[Means for Solving the Problem] Instead of the rack gear (handle) which reciprocates, this invention is the drum which twisted yarn around the perimeter, and is with the drum which whirled around to the interior and has arranged the spring. It generates electricity by pulling the yarn twisted around the drum by rotating a drum, rotating DOBOGIA with the DOBO device in which the rotation to the fixed direction further combined with the drum is permitted, and rotating the revolving shaft of DOBOGIA and the engaged magneto rotor. The taken-out yarn is automatically twisted around a drum by the stability of the swirl spring arranged on the interior of a drum, and is contained. Since this drum can be arranged inside a body case, it becomes possible [ miniaturizing a body configuration extremely compared with the portable hand dynamo of the conventional technique ]. Furthermore, since it is the reciprocating motion which pulls the yarn twisted around the drum, a both-way distance per round trip can enlarge compared with the portable hand dynamo of the conventional technique, the need rotational frequency of a generation-of-electrical-energy rotor can be easily obtained by that, and this invention becomes possible [ omitting the middle gear for accelerating it was / accelerating / the need conventionally ], it sticks and can realize the miniaturization of a body configuration.

[0007]

[Embodiment of the Invention] This invention consists of the generation-of-electrical-energy device section 10 which is made to rotate a generation-of-electrical-energy rotor, and is generated, the socket 20 for supplying power, and the body case 30 which contains them by pulling the yarn twisted around the drum.

[0008]

[Example] The generation-of-electrical-energy device section 10 is like drawing 1 , and a drum 11 is first rotated towards the drawing Nakaya mark A focusing on drum shaft 11c by pulling yarn 11b twisted around the perimeter of the drum 11 which has arranged swirl spring 11a inside in the direction of drawing Nakashita. Here, since the tip of yarn 11b is being fixed to the drum 11, a drum 11 can be rotated by pulling yarn 11b. Furthermore, the main edge of swirl spring 11a is being fixed to drum shaft 11c. One edge is being fixed to the inside of a drum 11. When rotating a drum 11 in the direction of arrow-head A of drawing 1 for the reason, swirl spring 11a is extracted toward a core. Therefore, if the tension of yarn 11b is loosened, a drum 11 will be reversed and yarn 11b will be rewound by the stability of swirl spring 11a around a drum 11. Subsequently, this drum 11 is attached in DOBOGIA 12 and the same axle with the DOBO device in which the rotation to an one direction is permitted. This DOBOGIA 12 allots rim gear 12b with internal-tooth 12a to the same axle through a drum 11 and drum shaft 11c, and internal-tooth 12a and pawl 12c to engage are attached in arm 11d fixed to the drum 11 free [

idling ]. If a drum 11 rotates in the direction of arrow-head A of drawing 1 , pawl 12c attached in arm 11d will be shaken out outside with a rotation centrifugal force, will engage to internal-tooth 12a of rim gear 12b, and will also rotate rim gear 12b. On the other hand, if a drum 11 rotates to the opposite direction of an arrow head A, pawl 12c will not engage with internal-tooth 12a, but will be in a slip condition, and rotation of a drum 11 will not get across to rim gear 12b. That is, as for rotation of a drum 11, only rotation of the right-and-left any 1 direction is transmitted to rim gear 12b, and opposite rotation is not transmitted. Rim gear 12b of this DOBOGIA 12 is engaged on the rotation gear 15 combined with the Rota revolving shaft 14 of a generator 13.

[0009] In order to enlarge electromotive force with a strong centrifugal force, as for the rotor of this generator 13, considering as an outer rotor is desirable.

[0010] A drum 11 and DCBOGIA 12 may be engaged through the transfer gear, although the integral construction in drawing is accomplished.

[0011] The socket 20 for supplying the electrical and electric equipment may be lead wire.

[0012] Next, an operation of this invention portable hand dynamo is explained. In order to use this invention portable hand dynamo, the actuation which is pulled with yarn 11b and to - Loosen is repeated. Then, a drum 11 rotates in the direction of drawing 1 Nakaya mark A at the time of the actuation which pulls yarn 11b. Yarn 11b by which it has been arranged inside a drum 11 on the other hand at the time of the actuation which loosens yarn 11b and which was taken out according to the stability of spring 11a by whirling while the drum 11 rotated to the opposite direction of an arrow head A is rolled round around a drum 11. Therefore, since DOBOGIA 12 is connected with the drum 11, only an one direction is always transmitted and rotation of a drum 11 rotates smoothly the rotor of the generator 13 currently engaged to DOBOGIA 12. And the produced electromotive force is supplied to a portable telephone, a pocket personal computer, a portable radio, etc. through a socket 20.

[0013]

[Effect of the Invention] Since the configuration is micro while this invention can supply the electrical and electric equipment for a generation of electrical energy and charge to portable telephone, a portable personal computer, a portable radio, etc. in the place which does not have a power source based on the above configuration, it is very advantageous to portability and can be used further, being able to include in the interior, such as a micro reason portable telephone.

## TECHNICAL FIELD

[The technical field to which invention belongs] This invention relates to the portable hand dynamo which can supply the electrical and electric equipment for a generation of electrical energy and charge to portable telephone, a portable personal computer, a portable radio, etc. in the place which does not have a power source.

## PRIOR ART

[Description of the Prior Art] the capacity of the cell used for these although the telecommunication device of pocket molds, such as a portable telephone, a portable personal computer, and GPS, has spread today -- a limitation -- it is -- on

the way -- the situation where the electrical and electric equipment come out of and stored exhausts and is perplexed often comes out.

[0003] Moreover, although portable radio, a flashlight, etc. are used as a handbook at the time of urgent disaster, since these devices are not usually used but are left, a possibility of exhausting a cell is size.

[0004] Then, these people have already proposed the utility model registration No. 3053139, and by moving by hand the rack gear energized by the spring continuously, the outline carries out transmission rotation of a clutch gear, a middle gear, and the gear for drive shafts, rotates the rotor of a generator, is generated, and takes out the electrical and electric equipment from output code.

## EFFECT OF THE INVENTION

[Effect of the Invention] Since the configuration is micro while this invention can supply the electrical and electric equipment for a generation of electrical energy and charge to portable telephone, a portable personal computer, a portable radio, etc. in the place which does not have a power source based on the above configuration, it is very advantageous to portability and can be used further, being able to include in the interior, such as a micro reason portable telephone.

## TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, with this design, a part of (1) rack gear (handle) needs to be arranged to the exterior of a body, and the body configuration had become size.

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## MEANS

[Means for Solving the Problem] Instead of the rack gear (handle) which reciprocates, this invention is the drum which twisted yarn around the perimeter, and is with the drum which whirled around to the interior and has arranged the spring. It generates electricity by pulling the yarn twisted around the drum by rotating a drum, rotating DOBOGIA with the DOBO device in which the rotation to the fixed direction further combined with the drum is permitted, and rotating the revolving shaft of DOBOGIA and the engaged magneto rotor. The taken-out yarn is automatically twisted around a drum by the stability of the swirl spring arranged on the interior of a drum, and is contained. Since this drum can be arranged inside a body case, it becomes possible [miniaturizing a body configuration extremely compared with the portable hand dynamo of the conventional technique]. Furthermore, since it is the reciprocating motion which pulls the yarn twisted around the drum, a both-way distance per round trip can enlarge compared with the portable hand dynamo of the conventional technique, the need rotational frequency of a generation-of-electrical-energy rotor can be easily obtained by that, and this invention becomes possible [omitting the middle gear for accelerating it was / accelerating / the need conventionally], it sticks and can realize the miniaturization of a body configuration.

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[Embodiment of the Invention] This invention consists of the generation-of-electrical-energy device section 10 which is made to rotate a generation-of-electrical-energy rotor, and is generated, the socket 20 for supplying power, and the body case 30 which contains them by pulling the yarn twisted around the drum.

## EXAMPLE

[Example] The generation-of-electrical-energy device section 10 is like drawing 1, and a drum 11 is first rotated towards the drawing Nakaya mark A focusing on drum shaft 11c by pulling yarn 11b twisted around the perimeter of the drum 11 which has arranged swirl spring 11a inside in the direction of drawing Nakashita. Here, since the tip of yarn 11b is being fixed to the drum 11, a drum 11 can be rotated by pulling yarn 11b. Furthermore, the main edge of swirl spring 11a is being fixed to drum shaft 11c. One edge is being fixed to the inside of a drum 11. When rotating a drum 11 in the direction of arrow-head A of drawing 1 for the reason, swirl spring 11a is extracted toward a core. Therefore, if the tension of yarn 11b is loosened, a drum 11 will be reversed and yarn 11b will be rewound by the stability of swirl spring 11a around a drum 11. Subsequently, this drum 11 is attached in DOBOGIA 12 and the same axle with the DOBO device in which the rotation to an one direction is permitted. This DOBOGIA 12 allots rim gear 12b with internal-tooth 12a to the same axle through a drum 11 and drum shaft 11c, and internal-tooth 12a and pawl 12c to engage are attached in arm 11d fixed to the drum 11 free [ idling ]. If a drum 11 rotates in the direction of arrow-head A of drawing 1, pawl 12c attached in arm 11d will be shaken out outside with a rotation centrifugal force, will engage to internal-tooth 12a of rim gear 12b, and will also rotate rim gear 12b. On the other hand, if a drum 11 rotates to the opposite direction of an arrow head A, pawl 12c will not engage with internal-tooth 12a, but will be in a slip condition, and rotation of a drum 11 will not get across to rim gear 12b. That is, as for rotation of a drum 11, only rotation of the right-and-left any 1 direction is transmitted to rim gear 12b, and opposite rotation is not transmitted. Rim gear 12b of this DOBOGIA 12 is engaged on the rotation gear 15 combined with the Rota revolving shaft 14 of a generator 13.

[0009] In order to enlarge electromotive force with a strong centrifugal force, as for the rotor of this generator 13, considering as an outer rotor is desirable.

[0010] A drum 11 and DOBOGIA 12 may be engaged through the transfer gear, although the integral construction in drawing is accomplished.

[0011] The socket 20 for supplying the electrical and electric equipment may be lead wire.

[0012] Next, an operation of this invention portable hand dynamo is explained. In order to use this invention portable hand dynamo, the actuation which is pulled with yarn 11b and to - Loosen is repeated. Then, a drum 11 rotates in the direction of drawing 1 Nakaya mark A at the time of the actuation which pulls yarn 11b. Yarn 11b by which it has been arranged inside a drum 11 on the other hand at the time of the actuation which loosens yarn 11b and which was taken out according to the stability of spring 11a by whirling while the drum 11 rotated to the opposite direction of an arrow head A is rolled round around a drum 11. Therefore, since DOBOGIA 12 is connected with the drum 11, only an one direction is always transmitted and rotation of a drum 11 rotates smoothly the rotor of the generator 13 currently engaged to DOBOGIA 12. And the produced electromotive force is

supplied to a portable telephone, a pocket personal computer, a portable radio, etc. through a socket 20.

## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] The cutting sectional view of this invention portable hand dynamo

[Description of Notations]

10 Generation-of-Electrical-Energy Device Section

11 Drum

11a Swirl spring

11b Yarn

11c Drum shaft

11d Arm

12 DOBOGIA

12a Internal tooth

12b Rim gear

12c Pawl

13 Generator

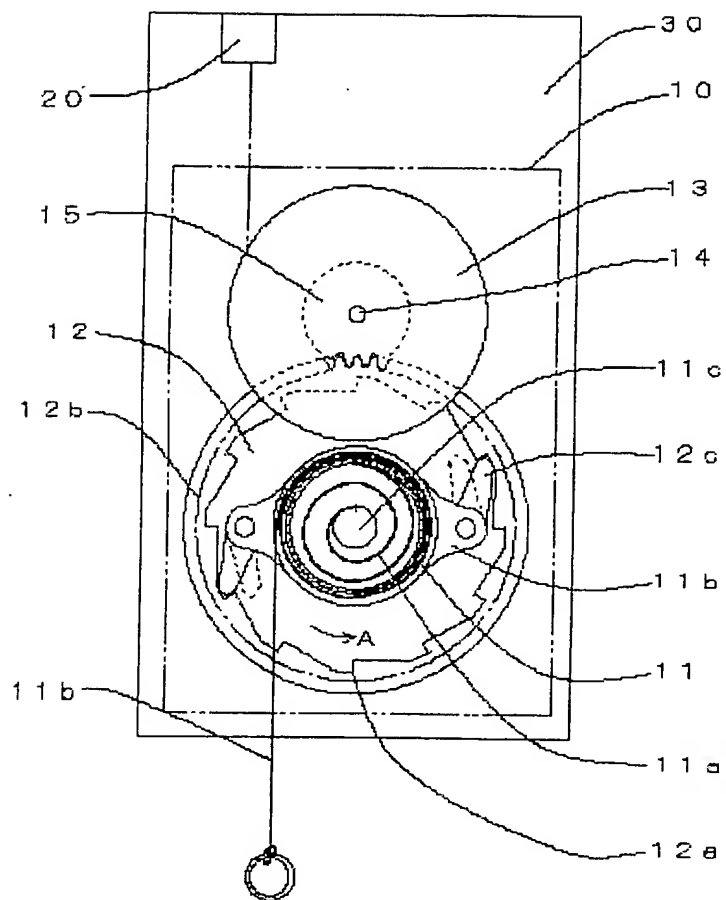
14 Rotor Revolving Shaft

15 Rotation Gear

20 Socket

30 Body Case

End Translation



(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開

特開2001-1

(P2001-1367

(43) 公開日 平成13年5月18日

(51) Int.Cl. <sup>7</sup>	識別記号	F I	テマ:
H 0 2 K 7/18		H 0 2 K 7/18	Z 5
F 1 6 H 31/00		F 1 6 H 31/00	C
H 0 2 K 7/06		H 0 2 K 7/06	Z
7/10		7/10	B

審査請求 未請求 請求項の数 1 O L

(21) 出願番号 特願平11-311691

(22) 出願日 平成11年11月1日(1999. 11. 1)

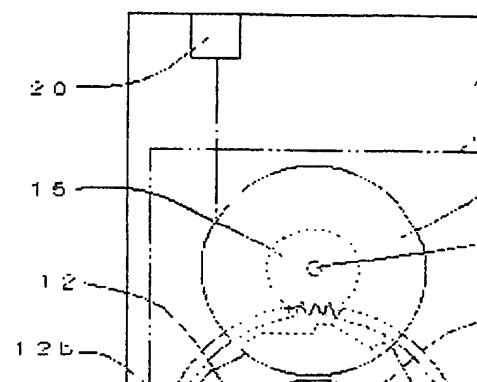
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CC05 DD19 EE31 III

(54) 【発明の名称】 携帯用手動発電機

(57) 【要約】

【課題】電源のないところで携帯用電話機、携帯用パソコン、携帯ラジオ等に電気を供給することができる携帯用の手動発電機で、ドラムに巻かれた糸を引張ることによって発電機を回転させ発電することを特徴とし、形状が超小型である手動式発電機を開発する。

【解決手段】本発明携帯用手動発電機は、ドラムの周囲に巻かれた糸を引張ることによりドラムとドーボギア、次いでドーボギアと歯合した発電機を回転させ発電する発電機部1(1)と電気を供給するためのソケット2(1)と





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## 【特許請求の範囲】

【請求項1】 周囲に糸を巻きつけたドラムであって、その内部にうずまきバネを配置したドラムの糸を繰り返して引張る動作によりドラムを回転させ、該ドラムに連結した一定方向への回転を許容するドーボ機構を有したドーボギアを介し、ドーボギアと歯合した発電機ローターを一方方向回転させ発電する機能を備えた超小型携帯用手動発電機。

## 【発明の詳細な説明】

【0001】

【発明が属する技術分野】本発明は、電源のないところで携帯用電話機、携帯用パソコン、携帯ラジオ等に発電及び充電用の電気を供給することのできる携帯用の手動発電機に関するものである。

【0002】

【従来の技術】今日、携帯電話機、携帯用パソコン及びGPS等の携帯型の電気通信機器が普及しているが、これらに用いられる電池の能力には限界があり、途中で蓄えた電気が消耗してしまい困惑する事態がしばしばである。

【0003】又、緊急災害時には、携帯用のラジオ、懐中電灯等が必須とされるが、これらの機器は通常使用されず放置されるため、電池を消耗してしまう恐れが大である。

【0004】そこで、本出願人は、既に実用新案登録第3053139号を提案しており、その概要は、スプリングに付勢されたラックギアを手で連続して動かすことにより、クラッチギア、中間ギア、駆動シャフト用ギアを逐次回転し、発電機のローターを回転させて発電し、出力コードから電気を取り出すものである。

【0005】

【発明が解決しようとする課題】しかし、該考案のままでは、

(1) ラックギア（ハンドル）の一部を本体外部に配置する必要があり、本体形状が大となっていた。

(2) ラックギア（ハンドル）の往復運動を回転運動にしているが、往復距離が短かいので発電機ローターを一定以上の回転数で回転させるには増速用の中間ギアを内部に数多く配置せねばならず、本体形状が大となっていた。

たうずまきバネの復元力により自動的にけられ収納される。本ドラムは、本体ケースであるので、本体形状を従来技術の携帯用電話機に比べ、極端に小型化することが可能となる。ドラムに巻きつけられた糸を引張ることで、1往復あたりの往復距離が従来技術の電話機に比べて大きくすることができ、その発電機ローターの必要回転数を容易に得られた増速のための中間ギアを省略することにより、ついでに、本体形状の小型化が実現

【0007】

【発明の実施の形態】本発明は、ドラムを引張ることにより発電機ローターを回転させる発電機構造部10と、電力を供給するためと、それらを収納する本体ケース30からなる。

【実施例】発電機構造部10は図1の如く

うずまきバネ11aを内部に配置したドラムに巻きつけた糸11bを図中下方方向に引張るドラム軸11cを中心にドラム11を図中上方方向に回転させる。ここで、糸11bの先端は、固定されているので、糸11bを引張ることでドラム11を回転させることができる。更に、うずまきバネ11aの中心端は、ドラム軸11cに固定され、その端部は、ドラム11の内面に固定される。ドラム11を図1の矢印A方向に回転すると、うずまきバネ11aは中心に向かって絞れて、糸11bの引張りを緩めると、うずまきバネ11aの復元力により、ドラム11は反転し、ドラム11の周囲に巻き戻される。次いで、ドラム11を一方方向への回転を許容するドーボ機構を有したドーボギア12と同軸に取り付けられている。該ドーボギア12は、ドラム11とドラム軸11cを介して、ドーボギア12aを有したリムギア12bを配し、ドラム11の中心には内歯12aと歯合する遊転自在に取り付けられている。ドラム11を図1の矢印A方向に回転すると、アーム11dに設けられた爪12cが回転遠心力で外側に振り出され、リムギア12bの内歯12aに歯合し、リムギア12bを回転させる。一方、ドラム11が矢印Aの反対方向に

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【0010】ドラム11とドーボギア12は、図中一体構造を成しているが、伝達ギアを介して歯合してあってもよい。

【0011】電気を供給する為のソケット20は、リード線であってもよい。

【0012】次に、本発明携帯用手動発電機の作用を説明する。本発明携帯用手動発電機を使用するには、糸11bを持って引張る・緩める動作を繰り返す。すると、糸11bを引張る動作のときは、ドラム11が図1中矢印A方向に回転する。一方、糸11bを緩める動作のときは、ドラム11の内部に配置されたうずまきバネ11aの復元力により、ドラム11は矢印Aの反対方向に回転すると共に、引っ張り出した糸11bはドラム11の周囲に巻き取られる。従って、ドラム11にはドーボギア12が連結してあるので、ドラム11の回転は常に一方向のみ伝達され、ドーボギア12に歯合してある発電機13のローターを円滑に回転させる。そして、生じた起電力は、ソケット20を経て、携帯電話機、携帯パソコン、携帯ラジオ等に供給される。

【0013】

【発明の効果】以上の構成に基づいて本発明は、電源のないところで携帯用電話機、携帯用パソコン、携帯ラジ\*

\*オ等に発電および充電用の電気が供給すると共に、その形状が超小型なので、携帯であり、更に超小型ゆえ携帯電話機等の使用することができる。

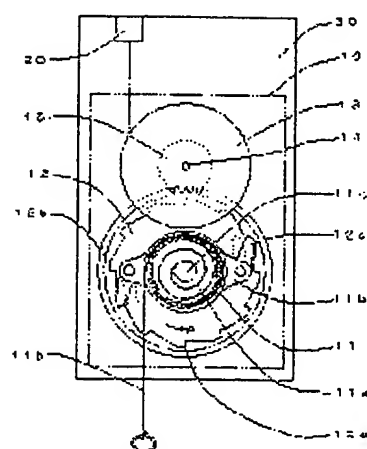
【図面の簡単な説明】

【図1】本発明携帯用手動発電機の切断

【符号の説明】

- |     |         |
|-----|---------|
| 10  | 発電機部    |
| 11  | ドラム     |
| 11a | うずまきバネ  |
| 11b | 糸       |
| 11c | ドラム軸    |
| 11d | アーム     |
| 12  | ドーボギア   |
| 12a | 内歯      |
| 12b | リムギア    |
| 12c | 爪       |
| 13  | 発電機     |
| 14  | ローター回転軸 |
| 15  | 回転ギア    |
| 20  | ソケット    |
| 30  | 本体ケース   |

【図1】



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